

REMARKS/ARGUMENTS

Claims 1-3, 5-12 and 37-59 are in the case. The applicants have studied the office action mailed January 15,, 2009 and have made the changes believed appropriate to place the application in condition for allowance. Reconsideration and reexamination are respectfully requested.

Claims 1,3, and 5-8 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cannon (US Patent No. 6,098,074) filed October 29, 1997, in view of Patterson (US Patent Application No. 2003/0182326) filed March 19,2002. Claims 2, 9, and 11 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cannon (US Patent No. 6,098,074) filed October 29, 1997, in view of Patterson (US Patent Application No. 2003/0182326) filed March 19,2002, further in view of Maurer (US Patent Application No. 20030065780) filed September 27,2002. Claims 10 and 12 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cannon (US Patent No. 6,098,074) filed October 29, 1997, in view of Patterson (US Patent Application No. 2003/0182326) filed March 19,2002, further in view of Maurer (US Patent Application No. 2003/0065780) filed September 27, 2002, and further in view of "Logical vs. Physical File System Backup", By: Hutchinson, Published: 1999; referred to hereinafter as 'Hutchinson'. These rejections are respectfully traversed.

Claim 1 is directed to a “data management method, comprising: backing up contents of a source device at a first client station as at least one object of a database stored in a data storage subsystem wherein the at least one object represents an image of the contents of the source device and wherein the image of the contents of the source device includes a plurality of files and a file directory of the source device; using the database, tracking attributes and location of the at least one object in the database; using the at least one object, restoring the contents of the source device from the at least one object to a target file in a file system stored on a storage device so that the target file contains said contents of the source device including said plurality of files and said file directory of the source device, wherein said file system comprises a plurality of files and an address table identifying the location of each file on said storage device; and copying the restored contents of the source device from the target file to a target device so that

the target device contains the contents of the source device including said plurality of files of the source device and said file directory of the source device.”

As set forth above, Claim 1 requires “using the at least one object, restoring the contents of the source device from the at least one object to *a target file* in a file system stored on a storage device so that *the target file contains* said contents of the source device *including said plurality of files and said file directory of the source device*.” [Emphasis added.] In contrast, it is believed that the Examiner’s citations to the “Client Restore” (col. 14, lines 1-13) of the Cannon reference describe using a database object to restore a volume containing files to the same or another volume so that it contains those *same* files. Thus, in the Cannon reference, a *plurality of files* are restored, via the database object, unchanged, on a one-to-one basis, as the same plurality of files. It is respectfully submitted that the Examiner has cited no portion of the Cannon reference which teaches or suggests that the Client Restore of the Cannon reference restores a plurality of files, in effect on a plurality-to-one basis, that is, as “*a target file*” which target file “*contains said contents of the source device*” wherein the contents of the source device includes “*a plurality of files and a file directory of the source device*”.

The Examiner has cited the “File Aggregation” (cols. 5-6, lines 63-67 and 1-9, respectively) of the Cannon reference. The Examiner’s citations to the “File Aggregation” of the Cannon reference describe aggregating one or more user files in a “managed file.” However, it is respectfully submitted that the Examiner has cited no portion of the Cannon reference which teaches or suggests “using the at least one object, restoring the contents of the source device from the at least one object to *a target file* in a file system stored on a storage device so that *the target file contains* said contents of the source device *including said plurality of files and said file directory of the source device*” as required by claim 1 [emphasis added]. On the contrary, in the Cannon reference, it appears that file directory information is stored in a separate “Inventory Table” (cols. 6-7, line 54 et seq.). The Examiner has cited no portion of the Cannon reference which teaches or suggests that the inventory table information is stored in a “managed file.” On the contrary, it is respectfully submitted that the Examiner’s citations to the Cannon reference make clear that the inventory table information is maintained separately from the managed file” (col. 11, lines 1-66).

The Examiner has cited the “Storage Pool Restore” (col. 17, lines 17-44) of the Cannon reference. However, it is believed that the Examiner’s citations to the “Storage Pool Restore” of

the Cannon reference describe using a database object within the database to restore that database object as the same database object to another location within the database. Thus, it does not appear that the nature of the database object changes when it is copied to another location. Accordingly, a database object having one or more files will, after copying to another location, have the same number of files as before. The Examiner has cited no portion of the Cannon reference which teaches or suggests “using the at least one object, restoring the contents of the source device from the at least one object to *a target file* in a file system stored on a storage device so that *the target file contains* said contents of the source device *including said plurality of files and said file directory of the source device*” as required by claim 1 [emphasis added]. Instead, it appears that the database object of the Cannon reference is restored as the same object unchanged at another location.

The Examiner’s citations to the “Client Backup” (col. 13, lines 50-67), and “Storage Pool Backup” (cols. 16-17, lines 54-67 and 1-44, respectively) of the Cannon reference similarly lack any teaching or suggestion of “using the at least one object, restoring the contents of the source device from the at least one object to *a target file* in a file system stored on a storage device so that *the target file contains* said contents of the source device *including said plurality of files and said file directory of the source device*” as required by claim 1.

The deficiencies of the Examiner’s citations to the Cannon reference are not met by the Examiner’s citations to the Patterson reference. It is the Examiner’s position that the Patterson reference “discloses restoring the plurality of files and file directory of the source device to a target file” citing paragraphs [0049-0052] of the Patterson reference. The applicants respectfully disagree.

Rather than restoring a plurality of files and file directory of the source device to a target file, the Patterson reference makes clear that the file systems are merged into a single *file system and volume*:

[0050] In accordance with the present invention, the backup server can "coalesce" or merge the snapshotted file systems associated with each of the backup clients to a single *file system and volume*. This coalescing of snapshots frees the backup server from having to have a separate *volume* for each backup client's file system. [emphasis added.]

It is respectfully submitted that a file system stored in a volume is clearly different from a target file. It is respectfully submitted that a file system includes a plurality of separate files and

a directory structure *external* to the files. Such an external directory structure provides a path to navigate to each separate file. Thus, the Patterson reference appears to be directed to merging a plurality of file systems into a single file system having a plurality of separate files and a directory structure *external* to the files. The Examiner has cited no portion of the Patterson reference which teaches or suggests “using the at least one object, restoring the contents of the source device from the at least one object to *a target file* in a file system stored on a storage device so that *the target file contains* said contents of the source device *including said plurality of files and said file directory of the source device.*” [Emphasis added.]

The deficiencies of the Examiner’s citations to the Cannon reference are not met by the Examiner’s citations to the Maurer or Hutchinson reference as set forth above. New independent claims 37, 48 and 49 may be distinguished in an analogous fashion.

The rejection of the dependent claims is improper for the reasons given above. Moreover, the dependent claims include additional limitations, which in combination with the base and intervening claims from which they depend provide still further grounds of patentability over the cited art.

For example, dependent claim 11 further requires: “... wherein said target file is a flat file.” It is the Examiner’s position that the Maurer reference teaches “wherein said target file is a flat file” citing paragraphs 0074, 0110, 0102, 0103 and 0110 of the Maurer reference. The applicants respectfully disagree.

It is respectfully submitted that the cited paragraphs discuss creating or using a map of the logical configuration of the physical devices on the source computer system in the form of a flat file:

[0074] The method further includes discovering logical information related to the Standard volumes that are part of the volume group on the source computer system 113a. A map of the logical information to physical devices on the source computer system is created, preferably in the form of a flat file that may be converted into a tree structure for fast verification of the logical information. That map is used to build a substantially identical logical configuration on the target computer system 113b, preferably after the logical information has been verified by using a tree structure configuration of the logical information. Maurer reference, paragraph 74.

Table 2 of the Maurer reference provides an example of such mapping information. The Examiner has cited no portion of the Maurer reference which in any manner teaches or suggests that such a flat file contains the restored contents of a source device wherein the contents of the source device includes *both a plurality of files* and a file directory of the source device as required by claims 1 and 11. Instead, in the Maurer reference, restoring files from a source standard volume is believed to be from either “the BCV's [business continuation volumes] on the target or tape.”

Accordingly, even if the Cannon, Patterson and Maurer references were combined, a point not conceded, it is clear that such a combination would at most include the Cannon storage system using a map of the logical configuration of the physical devices on the source computer system in the form of a flat file as discussed in the Maurer reference. The Examiner has cited no portion of the Cannon, Patterson and Maurer references, considered alone or in combination, which in any manner teaches or suggests that such a flat file contains the restored contents of a source device wherein the contents of the source device includes *both a plurality of files* and a file directory of the source device as required by claims 1 and 11.

As explained in the present specification, the claimed method permits the contents of a source device to be restored from a single file, the recited “a target file”. By comparison, it appears that a restoration method in accordance with the Maurer reference, utilizes many separate files, including a “tree structure file” which maps the logical configuration of the computer system as described at paragraph 74 of the Maurer reference, together with the data files containing the actual backed up data itself stored in either “the BCV's [business continuation volumes] on the target or tape” as described at paragraph 110 of the Maurer reference. Similarly, the Cannon system uses an inventory table separate from the user files or managed files as discussed above.

Dependent claims 46, 57 and 59, and independent claim 59 may be distinguished in a similar fashion.

Moreover, a method in accordance with the present description can, in one embodiment, readily permit the restoration of the source device contents using an operating system command such as the Unix “dd” command, to copy the contents of the target file to the target device (see claim 12) to restore the contents of the source device. Such contents are not limited to any particular type of data or application. Furthermore, such a Unix command does not require

operation of any application programs. By comparison, the “redo log” of the Maurer reference appears to be a part of the Oracle database and the database restore operation is performed by the Oracle database program using the redo log and the BCV’s on the target or tape. Maurer reference, paragraphs 106-111.

Dependent claims 47, 58 and independent claim 59 may be distinguished in a similar fashion.

Independent claim 59 also recites “if a target device is available, using the at least one object, restoring the contents of the source device from the at least one object to said target device; if said target device is not available, using the at least one object, restoring the contents of the source device from the at least one object to a flat target file ...; and copying the restored complete contents of the source device from the flat target file using the UNIX dd command to said target device when available so that the target device contains the complete contents of the source device ...” It is respectfully submitted that the Examiner has cited no portion of the references teaching or suggesting, alone or in combination, alternative restoration using an object to a target device if available or if not, to a flat file and then copying the contents of the flat file using the UNIX dd command to restore to the target device when available.

In view of the above, it is respectfully submitted that the rejection of the claims be withdrawn.

The Examiner has made various comments concerning the obviousness or anticipation of certain features of the present inventions. Applicants respectfully disagree. Applicants have addressed those comments directly hereinabove or the Examiner’s comments are deemed moot in view of the above response.

Conclusion

For all the above reasons, Applicant submits that the pending claims are patentable over the art of record. Applicants have not added any claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 09-0466.

The attorney of record invites the Examiner to contact him at (310) 553-7970 if the Examiner believes such contact would advance the prosecution of the case.

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By: /William Konrad/
Registration No. 28,868

Please direct all correspondences to:

William K. Konrad
Konrad Raynes & Victor, LLP
315 South Beverly Drive, Ste. 210
Beverly Hills, CA 90212
Tel: (310) 553-7970
Fax: 310-556-7984